Report to the Governor:
Water System Capacity

September 2002

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Contents

Executive Summary 1
1. Purpose of this Report 3
2. Washington State's Capacity Strategy 4
3. Measures and Successes 6
    Drinking Water State Revolving Fund (DWSRF) 6
    Operator Certification 7
    Operating Permits 7
    Surface Water Treatment Compliance 8
    Partnerships 9
    Small Communities Initiative 10
4. Challenges 11
    New Regulations 11
    Small Systems Financial Viability 11
    Educating Small Water Systems 11
    Resources 11
5. Conclusion and Next Steps 12

Executive Summary

Most people take safe drinking water for granted and are not aware of the difficulties communities face in providing it. Yet there are many challenges to providing people with safe and reliable drinking water. The federal Safe Drinking Water Act (SDWA) was enacted in 1974 to establish national drinking water standards aimed at preventing waterborne illness. In 1996, amendments to the SDWA required each state to carry out a strategy to ensure that water systems have the technical, managerial, and financial capacity to meet local, state, and federal drinking water standards.

Beginning October 1, 2002, and every three years thereafter, states must report on their progress in carrying-out their capacity strategy to the governor, the public, and the Environmental Protection Agency or face a 20 percent reduction of federal funds allocated to the state for the Drinking Water State Revolving Fund Program.

Washington's strategy for ensuring water system capacity centers on providing technical assistance to water providers to help them meet current requirements and build capacity to meet new challenges. This report highlights both the progress and the challenges to ensure water system capacity in Washington.

Since developing the capacity strategy in 1997, Washington has made significant progress in a number of key areas:

Drinking Water State Revolving Fund. Washington is a national leader in getting these federal funds to drinking water systems for capital improvements that enhance our ability to protect public health and improve regulatory compliance. Since 1997, we have committed about $130 million in loans to small systems, and both public and privately owned water systems – ranking us among the top three states in the nation for funding improvements. Last year $20 million in loans helped water systems meet new treatment requirements and replace aging infrastructure. In addition, a portion of the federal funds (26 to 31 percent, depending on the year) are "set-aside" to fund technical assistance and other critical support for building drinking water capacity in Washington State.

Operator certification. Regardless of the size of a drinking water system, the person or persons responsible for operating the system play a critical role in the public safety of drinking water and the prevention of waterborne illness. Such illness is a very real danger, as evidenced in the recent tragedy in Walkerton, Ontario, where 2,300 people became ill and seven died from a waterborne disease outbreak. In January 2001, new regulations required nearly 1,900 very small water systems in Washington to have a certified operator for the first time. As of August 2002, over 98 percent of those systems had come into compliance.

Operating permits. Annual operating permits for drinking water systems that fall under the requirements of the SDWA (Group A systems) provide a measure of how well the systems are meeting the requirements—thus providing safe and reliable drinking water to their customers.

Between 1997 and 2001, the number of systems in Washington with permits indicating substantial compliance with regulations increased by over 33 percent.

Surface Water Treatment Compliance. Surface water is more vulnerable to contamination than groundwater. Although only about seven percent of the water systems in Washington use surface water as the source of drinking water, they tend to be large systems, serving over 50 percent of the state's population. Since 1989, the Department of Health (DOH) has worked with water purveyors to resolve 140 inadequately treated surface water sources. Today, only 12 unfiltered sources remain under compliance action.

Partnerships. The Department of Health collaborates with local health jurisdictions and others to help ensure drinking water in Washington is safe and reliable. Local health jurisdictions are involved in many drinking water regulatory activities, including inspections of water systems. Thirty-eight DOH-approved Satellite Management Agencies provide professional management services to water systems across the state through direct ownership (about 450 systems) and contract management (about 600 systems). Federal funding has also allowed the department to form strong relationships with third party providers of technical assistance and training.

Small Communities Initiative. Small communities in Washington must meet the same public health and environmental requirements as larger cities, often without adequate resources. The state interagency *Small Communities Initiative* tackles this challenge by fostering good working relationships between communities and state regulators, promoting compliance with environmental and public health requirements, and supporting the economic vitality of small communities. The initiative has helped selected communities around the state come into compliance.

Despite considerable progress in building water system capacity in Washington, significant challenges remain. For example, many small water systems in the state are old and suffering from deferred maintenance, creating a potential for high public health risk. Many of these systems met new operator certification requirements through "grandparenting" and are expected to have a difficult time staying in compliance when the requirement for ongoing professional training comes due in December 2003.

1. Purpose of this Report

The federal Safe Drinking Water Act (SDWA) requires each state to carry out a strategy to ensure that water systems have the technical, managerial, and financial capacity to meet local, state, and federal drinking water standards.

Beginning October 1, 2002, and every three years thereafter, states must report on their progress in carrying-out their capacity strategy to the governor, the public, and the Environmental Protection Agency or face a 20 percent reduction of federal funds allocated to the state for the Drinking Water State Revolving Fund Program.

Washington's strategy for ensuring water system capacity centers on providing technical assistance to water providers to help them meet current requirements and build capacity to meet new challenges. This report highlights both the progress and the challenges to ensure water system capacity in Washington.

2. Washington State's Capacity Strategy

Safe, reliable drinking water is vital to protecting public health and maintaining economic vitality. In Washington, over 16,000 drinking water systems provide water to over five million residents, most of whom get their household water from 2,333 community water systems regulated under the SDWA.

As the table below illustrates, the great majority of residents get their water from less than 200 large Group A community systems, all of which serve more than a thousand homes. Comparatively small numbers of people are served by a large number of smaller systems—especially the over 12,000 Group B systems that serve an average of about eight persons per system. This proliferation of small systems is a major feature of Washington's drinking water scene, with considerable influence on our public health activities and strategies.

	Number of Systems	Residential Population Served
Group A Community Systems	2,333	5,044,418
Serving over 1,000 homes	191	4,442,237
Serving 100 to 999 homes	516	455,898
Serving 15 to 99 homes	1,626	146,283
Group A Noncommunity Systems Serve businesses, schools, motels, and other settings where people are away from home.	1,903	—
Group B Systems: 2 to 15 homes	12,566	107,301
Private wells: 1 per home	—	600,000

Washington State has built a sound drinking water program involving the Department of Health (DOH), local health jurisdictions, water utilities, private contractors, and many other partners. All work jointly to promote drinking water safety, and are committed to maintaining and improving this program. A major challenge is the increasing complexity of federal regulations. Within the last year, a renewed focus on water system security and emergency preparedness has added to water system management and operation responsibilities.

The SDWA amendments of 1996 introduced a new national requirement for states to improve the "capacity" of water systems. Capacity is defined as the technical, managerial, and financial capability to achieve and maintain compliance with applicable local, state, and federal drinking water standards.

The three types of capacity are:

- **Technical:** The physical system, including source, treatment, storage, distribution, and the ability of personnel to adequately operate the system.

- **Managerial:** The ability of system managers to conduct necessary activities such as staffing, planning, decision-making, maintaining accountability, and interacting with customers and regulatory agencies.

- **Financial:** The ability of the system to generate sufficient revenue, maintain credit worthiness, and manage funds through budgeting, accounting, and other methods of fiscal control for current and future system operation, maintenance, and development.

Since 1996, the Department of Health has established a regulatory structure requiring systems to enhance their capacity. Current efforts in this area focus on strengthening existing programs, providing technical assistance options, and building strong partnerships. We have taken full advantage of federal funding from the Drinking Water State Revolving Fund to help systems meet the many challenges of enhancing their capacity and supplying safe and reliable drinking water. A portion of the federal grant goes to "set-asides" which allow the state to provide technical assistance and other support to water systems.

3. Measures and Successes

Since capacity building is a relatively new program focus, we are just beginning to generate data that tell us the progress of our efforts. This report assesses several measures. Preliminary indications are that while we are moving in the right direction, it will take many years to meet the established expectations. Maintaining and enhancing a strong state drinking water program is critical to carrying out this important responsibility.

Measures of capacity development include:

- Drinking Water State Revolving Fund loans
- Operator certification compliance
- Operating permit status
- Surface water treatment compliance
- Partnerships
- The Small Communities Initiative

Drinking Water State Revolving Fund (DWSRF)

A key provision of the 1996 amendments to the SDWA was to direct federal funds to water systems through low-interest loans administered by the states. The goal is to finance water system capital improvements that increase public health protection and compliance with drinking water regulations.

Washington is a national leader in getting this money out to water systems, ranking among the top three states in total loans, loans to small systems, and loans made to privately owned systems. We have committed about $130 million in loans to drinking water infrastructure improvements in the state since the program was introduced in 1997. Twenty-five percent of loans executed to date solve public health problems that would have resulted in serious compliance actions if the capital improvements were not made.

The Department of Health, the Public Works Board, and the state Department of Community, Trade and Economic Development, jointly administer the DWSRF program.

A portion of Washington's DWSRF federal grant (26 to 31 percent, depending on the year) goes to "set-asides" used to provide technical assistance and other support to water systems such as:

- Contracting with providers to conduct sanitary surveys or provide follow-up services in response to survey findings.
- Helping systems with hypo chlorination understand the purpose of the treatment and the importance of routine monitoring and reporting.
- Helping systems complete DWSRF loan applications.
- Developing and distributing the annual Water Quality Monitoring Report which provides information to water systems on the samples they must collect during the coming year

- Providing information regarding coliform monitoring requirements and follow-up actions required for a positive sample.
- Answering questions from small systems about operator certification requirements.

Operator Certification

Properly trained and certified operators for drinking water systems are critical to protect public health—a fact highlighted by several waterborne disease outbreaks in North America in recent years. Particularly for small systems—those serving fewer than 3,300 people—this is a critical new focus.

In 2001, the Department of Health developed and adopted new water works operator certification regulations as required by the 1996 amendments to the SDWA. Before the new regulations took effect, 780 public drinking water systems in Washington were required to have a certified operator in charge of daily operations. After passage of the new regulations, about 1,900 more systems were required to employ a certified operator. As a result, many small water systems have a certified operator for the first time to help assure safe and reliable drinking water.

Despite this progress, 15 percent of small systems in Washington currently have red operating permits, meaning they are in substantial noncompliance with regulatory requirements. Many of these systems have problems that pose a risk to their customers' health. Most of the Division of Drinking Water's resources are involved in compliance actions related to such poorly operated systems.

The Water Works Operator Certification Program is a priority for the Division of Drinking Water because of its critical link to protecting people's health. A 1998 study by the Association of State Drinking Water Administrators found that operator certification was one of two management practices that correlated most strongly with fewer coliform detections in drinking water—the other being correction of deficiencies identified by sanitary surveys—an overall inspection of a water system.

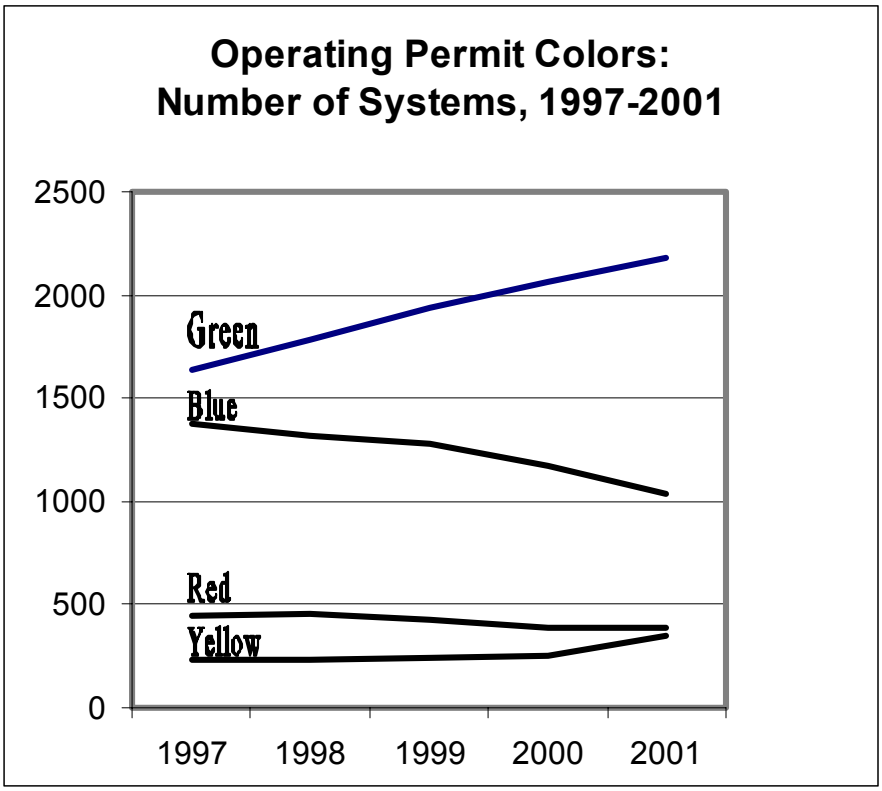
As of August 2002, 98 percent of Group A water systems required to have a certified operator were in compliance with this requirement. This relatively high compliance rate is due in part to a grandparenting provision in the new rules that allows certain systems a grace period, through the end of 2003, by which time they must have a designated operator obtain the proper education and professional growth training. The real test will come after these provisions expire in December 2003, and we anticipate that many grandparented operators will not meet the requirements. The compliance rate will most likely drop, and the department will need to shift and expend resources to help these systems maintain or regain compliance.

Operating Permits

Legislation passed in 1991 requires annual operating permits for Group A drinking water systems.

Operating permits provide a compliance tool—linked to annual performance evaluations of water systems—to assure consumers have access to safe and reliable drinking water and know the compliance status of their water system. Water systems are evaluated for compliance with drinking water regulations and are assigned a color category:

Green: Substantial Compliance
Yellow: Conditional Compliance
Red: Substantial Noncompliance
Blue: Undetermined



The operating permit system is an effective tool for evaluating water system capacity to achieve and maintain compliance with drinking water standards. The good news is that over the last five years the number of water systems issued a green operating permit steadily increased while systems issued red operating permits decreased slightly. Systems with a yellow permit remained generally steady except during 2001, when approximately 300 systems that did not meet their water system planning requirements were placed into the yellow category.

The number of systems issued blue operating permits is a major concern for the department. These systems have not yet been completely evaluated to ensure they are meeting all SDWA requirements. While the number is gradually decreasing, the department's Division of Drinking Water has shifted resources to further reduce the number through its sanitary survey program.

Surface Water Treatment Compliance

Surface water sources are generally more vulnerable to contamination than underground sources. Public health protection from bacteria, viruses, and other microorganisms commonly found in surface water requires constant attention by both water purveyors and regulators. Consequently, ensuring compliance with the Surface Water Treatment Rule is one of the department's most

critical drinking water objectives. Although only about seven percent of regulated drinking water systems use surface water sources, they serve over 50 percent of Washington's population.

Since 1989, with the adoption of the federal Surface Water Treatment Rule, the department has worked with water purveyors to resolve 140 inadequately treated surface water sources by either replacing the source or installing significant treatment improvements. The Department of Health's Division of Drinking Water provided funding assistance for facility improvements, and technical assistance to help water purveyors solve problems. When water purveyors were recalcitrant, constant active enforcement was applied to achieve compliance. Today, only 12 unfiltered sources remain under a compliance action to resolve the deficiency. The largest serves about 1,800 people. The department's goal is to resolve all of the remaining surface water source problems within the next two years.

To assure public health protection of consumers served by surface water systems, the department maintains a program of routine inspections, technical assistance, and operator training. Surface water treatment plants are visited and inspected more frequently than protected groundwater supplies because of the higher risk to public health.

Using DWSRF dollars, the department hired a consultant to evaluate 45 moderately sized treatment plants over a period of 18 months. The department will continue to use DWSRF money to evaluate more water treatment plants and provide technical assistance and training to help ensure that they are providing safe and reliable water to their customers.

Partnerships

The department's Division of Drinking Water collaborates with a variety of entities to help ensure safe and reliable drinking water supplies in Washington. These partnerships are a valuable asset in carrying out drinking water protection activities.

Local health jurisdictions are principal partners in protecting public health. They are involved in many drinking water regulatory activities, including sanitary surveys of drinking water systems and emergency response. Currently 28 out of 34 local health jurisdictions have entered into a Joint Plan of Operation agreement with the department to serve as the primary contractor for conducting sanitary surveys of small water systems. The department pays local health jurisdictions to conduct the surveys using DWSRF set-aside money and fees collected from the water utilities. Without these funding mechanisms, the department would not be able to compensate these local health jurisdiction efforts.

The department also partners with Satellite Management Agencies (SMAs) to provide enhanced operations, management, and emergency response capacity to small water systems. SMAs are established in state law and defined as "an individual, purveyor, or entity that is approved by the secretary (of the Department of Health) to own or operate more than one public water system on a regional or county-wide basis, without the necessity for a physical connection between such systems."

There are currently 38 SMAs approved by the department. They directly own about 450 public water systems and manage another 600 under contracts.

Federal funding has also allowed the department to form stronger relationships with third party technical assistance and training providers. Evergreen Rural Water of Washington has been a

valuable contributor, providing training and technical assistance to small water systems across the state. The Washington Environmental Training Resource Center, and the Rural Community Assistance Corporation are other major partners in training water system operators and managers. Maintaining these partnerships is critical to meeting our current goal of providing over 60,000 hours of training to water systems and their operators.

Small Communities Initiative

The *Small Communities Initiative* began in February 1999 when the state Departments of Health, Ecology, and Community Trade and Economic Development formally agreed to help small, rural communities tackle difficult public health and environmental problems. The initiative emphasizes a flexible, collaborative approach—regulatory and development agencies working with the communities to prioritize regulatory compliance issues, identify funding sources, and provide practical, effective technical assistance. To support this activity, the Department of Health allocated $139,000 from the Drinking Water State Revolving Fund set-asides for a staff position at the Department of Community Trade and Economic Development.

In the selected communities, agency staff facilitate discussions, provide technical advice, and serve as resource brokers to help local elected officials prioritize and identify the links between public health, environmental protection, and local growth and development issues. The agencies then help each community develop an action plan leading to regulatory compliance, long-term community sustainability, and economic viability.

During the project's initial phase, several small communities accomplished a variety of environmental and public health improvement projects. Many were water system improvements that prevented problems that could pose a risk to public health. Additional benefits included cost savings on infrastructure projects, community goal setting, and plans to achieve them, and improved relationships between the communities and the regulatory agencies. Two communities that benefited were:

Cathlamet (Wahkiakum County)—Adopted a Water System Plan, identified funding for drinking water improvements, appointed a planning commission, sponsored training focused on annexation and local planning, and completed a Community Action Plan.

Curlew (Ferry County)—Identified and funded drinking water improvements, reviewed water rate structure, focused planning efforts on business and tourism, and completed a Community Action Plan.

The Small Communities Initiative is now funded through a cooperative interagency partnership. The ability to continue this effort and funding partnership beyond June 2003 is unclear given important state budget decisions that lie ahead.

4. Challenges

New Regulations

New regulations for public drinking water systems continue to grow in number and complexity. In 1986, water systems were regulated for only 23 contaminants. By 2001, that number had grown to 91, and it is projected to reach 103 by the end of 2002. One projection is that the number of regulated contaminants could be as high as 130 by the year 2010.

Along with the regulated contaminants, there are many oversight requirements for drinking water systems such as operations, water quality sampling and reporting, capacity building, public notification, and routine inspections. While all of these regulations are key to protecting public health and assuring safe and reliable drinking water, the department and the drinking water systems subject to the regulations will be challenged to meet all the new requirements. Many small systems simply cannot afford the costs of meeting the requirements—creating new challenges for the department to help them restructure and/or consolidate with larger systems.

Small Systems Financial Viability

Drinking water systems across the state with less than 3,300 customers have great difficulty keeping up with the rapidly expanding SDWA regulations. They often have deteriorating infrastructure and lack a sufficient customer base for sharing the costs of meeting requirements, constructing necessary infrastructure, and hiring competent operational and management staff. Public health risks are apt to increase as these systems further deteriorate.

Educating Small Water Systems

There are many federally regulated drinking water systems in Washington State—currently over 4,200. The majority are small water systems. Finding ways to adequately reach and educate these small system owners, operators and board members is an ongoing challenge. Effective communication with these small systems is critical to ensuring that they are informed and understand their responsibilities so they can make sound decisions. The Department of Health's efforts in this regard include sanitary surveys, direct mailings, training workshops, and seminars.

Resources

State constraints on the number of staff positions allowed in the Department of Health are creating a serious challenge for the department to maintain capacity in managing its drinking water program.

Because there are so many drinking water systems in the state, additional financial and staff resources are needed to improve our efforts in the areas of sanitary surveys, small water system management, third party contracts and partnerships, and technical assistance.

Enforcement and compliance activities represent another challenge resulting from resource limitations. Violations considered a low risk to public health often are set-aside in order to focus on violations that pose a higher public health threat. Additional financial and staff resources are needed to boost our enforcement and compliance efforts including providing technical assistance to water systems so they can resolve problems before they pose a health risk.

5. Conclusion and Next Steps

Long before the federal concept of capacity development was enacted in 1996, it was a goal of the Department of Health to help systems achieve and maintain the capability to ensure safe and reliable drinking water. The department has been successful in many ways, but despite measurable progress, significant challenges remain.

Many small drinking water systems are old and suffer from deferred maintenance – posing a high public health risk. Many of these systems need significant infrastructure repair or replacement yet some will find it impossible to resolve their deficiencies plus meet growing requirements and public expectations for delivery of safe water.

It is essential that additional state and federal resources be acquired to ensure systems have the technical, managerial, and financial capability to manage public health situations and continue delivering safe and reliable drinking water.

Future efforts to meet the challenges described in this report include:

- Maintain a strong DWSRF program, with efficient use of set-aside funds to enhance capacity and promote water system infrastructure reinvestment.
- Encourage consolidation of small systems through regional initiatives.
- Focus training for small system operators.
- Maintain current compliance levels to the degree possible.
- Enhance and create new, strong partnerships with others to help carry out critical drinking water program elements.
- Continue our partnerships with local health jurisdictions and others to conduct sanitary surveys on small water systems every five years.
- Maintain and enhance state financial and staff resources.
- Communicate well with Washington residents—focusing on customers of regulated drinking water systems and elected officials to increase awareness and support for safe and reliable drinking water efforts.